

SEQUENCE LISTING

(1) GENERAL INFORMATION:

- 5 (i) APPLICANT: Genentech, Inc.
De Sauvage, Frederic J.
Levin, Nancy
Vandlen, Richard L.
- (ii) TITLE OF INVENTION: OB Protein Derivatives
- (iii) NUMBER OF SEQUENCES: 2
- 10 (iv) CORRESPONDENCE ADDRESS:
(A) ADDRESSEE: Genentech, Inc.
(B) STREET: 460 Point San Bruno Blvd
(C) CITY: South San Francisco
(D) STATE: California
(E) COUNTRY: USA
15 (F) ZIP: 94080
- (v) COMPUTER READABLE FORM:
(A) MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
20 (D) SOFTWARE: WinPatin (Genentech)
- (vi) CURRENT APPLICATION DATA:
(A) APPLICATION NUMBER:
(B) FILING DATE: 19-Dec-1996
(C) CLASSIFICATION:
- 25 (vii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: 08/667184
(B) FILING DATE: 20-JUN-1996
- (vii) PRIOR APPLICATION DATA:
(A) APPLICATION NUMBER: 08/579494
30 (B) FILING DATE: 27-DEC-1995
- (viii) ATTORNEY/AGENT INFORMATION:
(A) NAME: Dreger, Ginger R.
(B) REGISTRATION NUMBER: 33,055
(C) REFERENCE/DOCKET NUMBER: 985P2PCT
- 35 (ix) TELECOMMUNICATION INFORMATION:
(A) TELEPHONE: 415/225-3216
(B) TELEFAX: 415/952-9881
(C) TELEX: 910/371-7168

(2) INFORMATION FOR SEQ ID NO:1:

- 40 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7127 base pairs
(B) TYPE: Nucleic Acid
(C) STRANDEDNESS: Double

(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

TTCGAGCTCG CCCGACATTG ATTATTGACT AGTTATTAAT AGTAATCAAT 50
TACGGGGTCA TTAGTTCATA GCCCATATAT GGAGTTCCGC GTTACATAAC 100
5 TTACGGTAAA TGGCCCGCCT GGCTGACCGC CCAACGACCC CCGCCCATTG 150
ACGTCAATAA TGACGTATGT TCCCATAGTA ACGCCAATAG GGACTTTCCA 200
TTGACGTCAA TGGGTGGAGT ATTTACGGTA AACTGCCCAC TTGGCAGTAC 250
ATCAAGTGTA TCATATGCCA AGTACGCCCC CTATTGACGT CAATGACGGT 300
AAATGGCCCCG CCTGGCATTG TGCCCAGTAC ATGACCTTAT GGGACTTTCC 350
10 TACTTGGCAG TACATCTACG TATTAGTCAT CGCTATTACC ATGGTGATGC 400
GGTTTTGGCA GTACATCAAT GGGCGTGGAT AGCGGTTTGA CTCACGGGGA 450
TTTCCAAGTC TCCACCCCAT TGACGTCAAT GGGAGTTTGT TTTGGCACCA 500
AAATCAACGG GACTTTCCAA AATGTCGTAA CAACTCCGCC CCATTGACGC 550
AAATGGGCGG TAGGCGTGTA CGGTGGGAGG TCTATATAAG CAGAGCTCGT 600
15 TTAGTGAACC GTCAGATCGC CTGGAGACGC CATCCACGCT GTTTTGACCT 650
CCATAGAAGA CACCGGGACC GATCCAGCCT CCGCGGCCGG GAACGGTGCA 700
TTGGAACGCG GATTCCCCGT GCCAAGAGTG ACGTAAGTAC CGCCTATAGA 750
GTCTATAGGC CCACCCCCTT GGCTTCGTGA GAACGCGGCT ACAATTAATA 800
CATAACCTTA TGTATCATAC ACATACGATT TAGGTGACAC TATAGAATAA 850
20 CATCCACTTT GCCTTTCTCT CCACAGGTGT CCACTCCCAG GTCCAACGTC 900
ACCTCGTTTC TATCGATATG CATTGGGGAA CCCTGTGCGG ATTCTTGTGG 950
CTTTGGCCCT ATCTTTTCTA TGTCCAAGCT GTGCCCATCC AAAAAGTCCA 1000
AGATGACACC AAAACCCTCA TCAAGACAAT TGTCACCAGG ATCAATGACA 1050
TTTCACACAC GCAGTCAGTC TCCTCCAAAC AGAAAGTCAC CGGTTTGGAC 1100
25 TTCATTCTTG GGCTCCACCC CATCCTGACC TTATCCAAGA TGGACCAGAC 1150
ACTGGCAGTC TACCAACAGA TCCTCACCAG TATGCCTTCC AGAAACGTGA 1200
TCCAAATATC CAACGACCTG GAGAACCTCC GGGATCTTCT TCACGTGCTG 1250
GCCTTCTCTA AGAGCTGCCA CTTGCCCTGG GCCAGTGGCC TGGAGACCTT 1300

GGACAGCCTG GGGGGTGTCC TGAAGCTTC AGGCTACTCC ACAGAGGTGG 1350
TGGCCCTGAG CAGGCTGCAG GGGTCTCTGC AGGACATGCT GTGGCAGCTG 1400
GACCTCAGCC CTGGGTGCGG GGTCACCGAC AAAACTCACA CATGCCCACC 1450
GTGCCCAGCA CCTGAACTCC TGGGGGGACC GTCAGTCTTC CTCTTCCCCC 1500
5 CAAAACCCAA GGACACCCTC ATGATCTCCC GGACCCCTGA GGTCACATGC 1550
GTGGTGGTGG ACGTGAGCCA CGAAGACCCT GAGGTCAAGT TCAACTGGTA 1600
CGTGACGGC GTGGAGGTGC ATAATGCCAA GACAAAGCCG CGGGAGGAGC 1650
AGTACAACAG CACGTACCGT GTGGTCAGCG TCCTCACCGT CCTGCACCAG 1700
GACTGGCTGA ATGGCAAGGA GTACAAGTGC AAGGTCTCCA ACAAAGCCCT 1750
10 CCCAGCCCCC ATCGAGAAAA CCATCTCCAA AGCCAAAGGG CAGCCCCGAG 1800
AACCACAGGT GTACACCCTG CCCCATCCC GGGAAGAGAT GACCAAGAAC 1850
CAGGTCAGCC TGACCTGCCT GGTCAAAGGC TTCTATCCCA GCGACATCGC 1900
CGTGGAGTGG GAGAGCAATG GGCAGCCGGA GAACAACACTAC AAGACCACGC 1950
CTCCCGTGCT GGACTCCGAC GGCTCCTTCT TCCTCTACAG CAAGCTCACC 2000
15 GTGGACAAGA GCAGGTGGCA GCAGGGGAAC GTCTTCTCAT GCTCCGTGAT 2050
GCATGAGGCT CTGCACAACC ACTACACGCA GAAGAGCCTC TCCCTGTCTC 2100
CGGGTAAATG AGTGCGACGG CCCTAGAGTC GACCTGCAGA AGCTTCTAGA 2150
GTCGACCTGC AGAAGCTTGG CCGCCATGGC CCAACTTGTT TATTGCAGCT 2200
TATAATGGTT ACAAATAAAG CAATAGCATC ACAAATTTCA CAAATAAAGC 2250
20 ATTTTTTTTCA CTGCATTCTA GTTGTGGTTT GTCCAAACTC ATCAATGTAT 2300
CTTATCATGT CTGGATCGAT CGGGAATTAA TTCGGCGCAG CACCATGGCC 2350
TGAAATAACC TCTGAAAGAG GAACTTGGTT AGGTACCTTC TGAGGCGGAA 2400
AGAACCAGCT GTGGAATGTG TGTCAGTTAG GGTGTGGAAA GTCCCCAGGC 2450
TCCCCAGCAG GCAGAAGTAT GCAAAGCATG CATCTCAATT AGTCAGCAAC 2500
25 CAGGTGTGGA AAGTCCCCAG GCTCCCCAGC AGGCAGAAGT ATGCAAAGCA 2550
TGCATCTCAA TTAGTCAGCA ACCATAGTCC CGCCCCTAAC TCCGCCCATC 2600
CCGCCCCCTAA CTCCGCCCCAG TTCCGCCCCAT TCTCCGCCCC ATGGCTGACT 2650
AATTTTTTTTT ATTTATGCAG AGGCCGAGGC CGCCTCGGCC TCTGAGCTAT 2700

TCCAGAAGTA GTGAGGAGGC TTTTGGAG GCCTAGGCTT TTGCAAAAAG 2750
 CTGTTAATTC GAACACGCAG ATGCAGTCGG GCGGCGCGG TCCCAGGTCC 2800
 ACTTCGCATA TTAAGGTGAC GCGTGTGGCC TCGAACACCG AGCGACCCTG 2850
 CAGCGACCCG CTTAACAGCG TCAACAGCGT GCCGCAGATC TGATCAAGAG 2900
 5 ACAGGATGAG GATCGTTTCG CATGATTGAA CAAGATGGAT TGCACGCAGG 2950
 TTCTCCGGCC GCTTGGGTGG AGAGGCTATT CGGCTATGAC TGGGCACAAC 3000
 AGACAATCGG CTGCTCTGAT GCCGCCGTGT TCCGGCTGTC AGCGCAGGGG 3050
 CGCCCGGTTT TTTTGTCAA GACCGACCTG TCCGGTGCCC TGAATGAACT 3100
 GCAGGACGAG GCAGCGCGGC TATCGTGGCT GGCCACGACG GGCCTTCCTT 3150
 10 GCGCAGCTGT GCTCGACGTT GTCCTGAAG CGGGAAGGGA CTGGCTGCTA 3200
 TTGGGCGAAG TGCCGGGGCA GGATCTCCTG TCATCTCACC TTGCTCCTGC 3250
 CGAGAAAGTA TCCATCATGG CTGATGCAAT GCGGCGGCTG CATACGCTTG 3300
 ATCCGGCTAC CTGCCCATTC GACCACCAAG CGAAACATCG CATCGAGCGA 3350
 GCACGTAATC GGATGGAAGC CGGTCTTGTC GATCAGGATG ATCTGGACGA 3400
 15 AGAGCATCAG GGGCTCGCGC CAGCCGAAGT GTTCGCCAGG CTCAAGGCGC 3450
 GCATGCCCCA CGGCGAGGAT CTCGTCTGTA CCCATGGCGA TGCCTGCTTG 3500
 CCGAATATCA TGGTGGAAAA TGGCCGCTTT TCTGGATTCA TCGACTGTGG 3550
 CCGGCTGGGT GTGGCGGACC GCTATCAGGA CATAGCGTTG GCTACCCGTG 3600
 ATATTGCTGA AGAGCTTGGC GGCGAATGGG CTGACCGCTT CCTCGTGCTT 3650
 20 TACGGTATCG CCGCTCCCGA TTCGCAGCGC ATCGCCTTCT ATCGCCTTCT 3700
 TGACGAGTTC TTCTGAGCGG GACTCTGGGG TTCGAAATGA CCGACCAAGC 3750
 GACGCCCAAC CTGCCATCAC GAGATTTCTG TTCCACCGCC GCCTTCTATG 3800
 AAAGGTTGGG CTTCCGAATC GTTTTCCGGG ACGCCGGCTG GATGATCCTC 3850
 CAGCGCGGGG ATCTCATGCT GGAGTTCTTC GCCCACCCCG GGAGATGGGG 3900
 25 GAGGCTAACT GAAACACGGA AGGAGACAAT ACCGGAAGGA ACCCGCGCTA 3950
 TGACGGCAAT AAAAAGACAG AATAAAACGC ACGGGTGTG GGTCTTTGT 4000
 TCATAAACGC GGGGTTCGGT CCCAGGGCTG GCACTCTGTC GATACCCAC 4050
 CGAGACCCCA TTGGGGCCAA TACGCCCGCG TTTCTTCCTT TTCCCCACCC 4100

CAACCCCCAA GTTCGGGTGA AGGCCAGGG CTCGCAGCCA ACGTCGGGGC 4150
 GGCAAGCCCG CCATAGCCAC GGGCCCCGTG GGTTAGGGAC GGGGTCCCCC 4200
 ATGGGGAATG GTTTATGGTT CGTGGGGGTT ATTCTTTTGG GCGTTGCGTG 4250
 GGGTCAGGTC CACGACTGGA CTGAGCAGAC AGACCCATGG TTTTGGATG 4300
 5 GCCTGGGCAT GGACCGCATG TACTGGCGCG ACACGAACAC CGGGCGTCTG 4350
 TGGCTGCCAA ACACCCCCGA CCCCCAAAA CCACCGCGCG GATTTCTGGC 4400
 GCCGCCGGAC GAACTAAACC TGACTACGGC ATCTCTGCCC CTTCTTCGCT 4450
 GGTACGAGGA GCGCTTTTGT TTTGTATTGG TCACCACGGC CGAGTTTCCG 4500
 CGGGACCCCG GCCAGGGCAC CTGTCCTACG AGTTGCATGA TAAAGAAGAC 4550
 10 AGTCATAAGT GCGGCGACGA TAGTCATGCC CCGCGCCAC CGGAAGGAGC 4600
 TGACTGGGTT GAAGGCTCTC AAGGGCATCG GTCGAGCGGC CGCATCAAAG 4650
 CAACCATAGT ACGCGCCCTG TAGCGGCGCA TTAAGCGCGG CGGGTGTGGT 4700
 GGTACGCGC AGCGTGACCG CTACACTTGC CAGCGCCCTA GCGCCCGCTC 4750
 CTTTCGCTTT CTTCCCTTCC TTTCTCGCCA CGTTCGCCCG CTTTCCCCGT 4800
 15 CAAGCTCTAA ATCGGGGGCT CCCTTTAGGG TTCCGATTGA GTGCTTTACG 4850
 GCACCTCGAC CCCAAAAAAC TTGATTGTTG TGATGGTTCA CGTAGTGGGC 4900
 CATCGCCCTG ATAGACGGTT TTTGCGCCCTT TGACGTTGGA GTCCACGTTT 4950
 TTTAATAGTG GACTCTTGTT CCAAACCTGA ACAACACTCA ACCCTATCTC 5000
 GGGCTATTCT TTTGATTAT AAGGGATTTT GCCGATTTCG GCCTATTGGT 5050
 20 TAAAAAATGA GCTGATTAA CAAAAATTA ACGCGAATTT TAACAAAATA 5100
 TTAACGTTTA CAATTTTATG GTGCAGGCCT CGTGATACGC CTATTTTAT 5150
 AGGTAAATGT CATGATAATA ATGGTTTCTT AGACGTCAGG TGGCACTTTT 5200
 CGGGGAAATG TGCGCGGAAC CCCTATTGT TATTTTTTCT AAATACATTC 5250
 AAATATGTAT CCGCTCATGA GACAATAACC CTGATAAATG CTTCAATAAT 5300
 25 ATTGAAAAAG GAAGAGTATG AGTATTCAAC ATTTCCGTGT CGCCCTTATT 5350
 CCCTTTTTTG CGGCATTTTG CCTTCCTGTT TTTGCTCACC CAGAAACGCT 5400
 GGTGAAAGTA AAAGATGCTG AAGATCAGTT GGGTGACGA GTGGGTACA 5450
 TCGAACTGGA TCTCAACAGC GGTAAGATCC TTGAGAGTTT TCGCCCCGAA 5500

GAACGTTTTTC CAATGATGAG CACTTTTAAA GTTCTGCTAT GTGGCGCGGT 5550
ATTATCCCGT GATGACGCCG GGCAAGAGCA ACTCGGTCGC CGCATACACT 5600
ATTCTCAGAA TGA CT TGGTT GAGTACTCAC CAGTCACAGA AAAGCATCTT 5650
ACGGATGGCA TGACAGTAAG AGAATTATGC AGTGCTGCCA TAACCATGAG 5700
5 TGATAACACT GCGGCCAACT TACTTCTGAC AACGATCGGA GGACCGAAGG 5750
AGCTAACCGC TTTTGTGCAC AACATGGGGG ATCATGTAAC TCGCCTTGAT 5800
CGTTGGGAAC CGGAGCTGAA TGAAGCCATA CCAAACGACG AGCGTGACAC 5850
CACGATGCCA GCAGCAATGG CAACAACGTT GCGCAAAC TA TAACTGGCG 5900
AACTACTTAC TCTAGCTTCC CGGCAACAAT TAATAGACTG GATGGAGGCG 5950
10 GATAAAGTTG CAGGACCACT TCTGCGCTCG GCCCTTCCGG CTGGCTGGTT 6000
TATTGCTGAT AAATCTGGAG CCGGTGAGCG TGGGTCTCGC GGTATCATTG 6050
CAGCACTGGG GCCAGATGGT AAGCCCTCCC GTATCGTAGT TATCTACACG 6100
ACGGGGAGTC AGGCAACTAT GGATGAACGA AATAGACAGA TCGCTGAGAT 6150
AGGTGCCTCA CTGATTAAGC ATTGGTAACT GTCAGACCAA GTTTACTCAT 6200
15 ATATACTTTA GATTGATTTA AAACCTTCATT TTTAATTTAA AAGGATCTAG 6250
GTGAAGATCC TTTTGTGATA TCTCATGACC AAAATCCCTT AACGTGAGTT 6300
TTCGTTCCAC TGAGCGTCAG ACCCCGTAGA AAAGATCAAA GGATCTTCTT 6350
GAGATCCTTT TTTTCTGCGC GTAATCTGCT GCTTGCAAAC AAAAAACCA 6400
CCGCTACCAG CGGTGGTTTG TTTGCCGGAT CAAGAGCTAC CAACTCTTTT 6450
20 TCCGAAGGTA ACTGGCTTCA GCAGAGCGCA GATACCAAAT ACTGTCCTTC 6500
TAGTGTAGCC GTAGTTAGGC CACCACTTCA AGAACTCTGT AGCACCGCCT 6550
ACATACCTCG CTCTGCTAAT CCTGTTACCA GTGGCTGCTG CCAGTGGCGA 6600
TAAGTCGTGT CTTACCGGGT TGGACTCAAG ACGATAGTTA CCGGATAAGG 6650
CGCAGCGGTC GGGCTGAACG GGGGGTTCGT GCACACAGCC CAGCTTGGAG 6700
25 CGAACGACCT ACACCGAACT GAGATACCTA CAGCGTGAGC ATTGAGAAAG 6750
CGCCACGCTT CCCGAAGGGA GAAAGGCGGA CAGGTATCCG GTAAGCGGCA 6800
GGGTGGAAC AGGAGAGCGC ACGAGGGAGC TTCCAGGGGG AAACGCCTGG 6850
TATCTTTATA GTCCTGTCGG GTTTCGCCAC CTCTGACTTG AGCGTCGATT 6900

TTTGTGATGC TCGTCAGGGG GCGCGAGCCT ATGGAAAAAC GCCAGCTGGC 6950
 ACGACAGGTT TCCCGACTGG AAAGCGGGCA GTGAGCGCAA CGCAATTAAT 7000
 GTGAGTTACC TCACTCATTA GGCACCCAG GCTTTACACT TTATGCTTCC 7050
 GGCTCGTATG TTGTGTGGAA TTGTGAGCGG ATAACAATTT CACACAGGAA 7100

5 ACAGCTATGA CCATGATTAC GAATTAA 7127

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 397 amino acids
 (B) TYPE: Amino Acid
 10 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

	Met	His	Trp	Gly	Thr	Leu	Cys	Gly	Phe	Leu	Trp	Leu	Trp	Pro	Tyr	
	1				5					10					15	
15	Leu	Phe	Tyr	Val	Gln	Ala	Val	Pro	Ile	Gln	Lys	Val	Gln	Asp	Asp	
				20						25					30	
	Thr	Lys	Thr	Leu	Ile	Lys	Thr	Ile	Val	Thr	Arg	Ile	Asn	Asp	Ile	
				35						40					45	
	Ser	His	Thr	Gln	Ser	Val	Ser	Ser	Lys	Gln	Lys	Val	Thr	Gly	Leu	
				50						55					60	
20	Asp	Phe	Ile	Pro	Gly	Leu	His	Pro	Ile	Leu	Thr	Leu	Ser	Lys	Met	
				65						70					75	
	Asp	Gln	Thr	Leu	Ala	Val	Tyr	Gln	Gln	Ile	Leu	Thr	Ser	Met	Pro	
				80						85					90	
	Ser	Arg	Asn	Val	Ile	Gln	Ile	Ser	Asn	Asp	Leu	Glu	Asn	Leu	Arg	
25				95						100					105	
	Asp	Leu	Leu	His	Val	Leu	Ala	Phe	Ser	Lys	Ser	Cys	His	Leu	Pro	
				110						115					120	
	Trp	Ala	Ser	Gly	Leu	Glu	Thr	Leu	Asp	Ser	Leu	Gly	Gly	Val	Leu	
				125						130					135	
30	Glu	Ala	Ser	Gly	Tyr	Ser	Thr	Glu	Val	Val	Ala	Leu	Ser	Arg	Leu	
				140						145					150	
	Gln	Gly	Ser	Leu	Gln	Asp	Met	Leu	Trp	Gln	Leu	Asp	Leu	Ser	Pro	
				155						160					165	
	Gly	Cys	Gly	Val	Thr	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	
35				170						175					180	
	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	

					185					190					195
	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr
					200					205					210
5	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe
					215					220					225
	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys
					230					235					240
	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val
					245					250					255
10	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys
					260					265					270
	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr
					275					280					285
	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr
15					290					295					300
	Leu	Pro	Pro	Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu
					305					310					315
	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu
					320					325					330
20	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro
					335					340					345
	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu
					350					355					360
	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys
25					365					370					375
	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser
					380					385					390
	Leu	Ser	Leu	Ser	Pro	Gly	Lys								
					395					397					